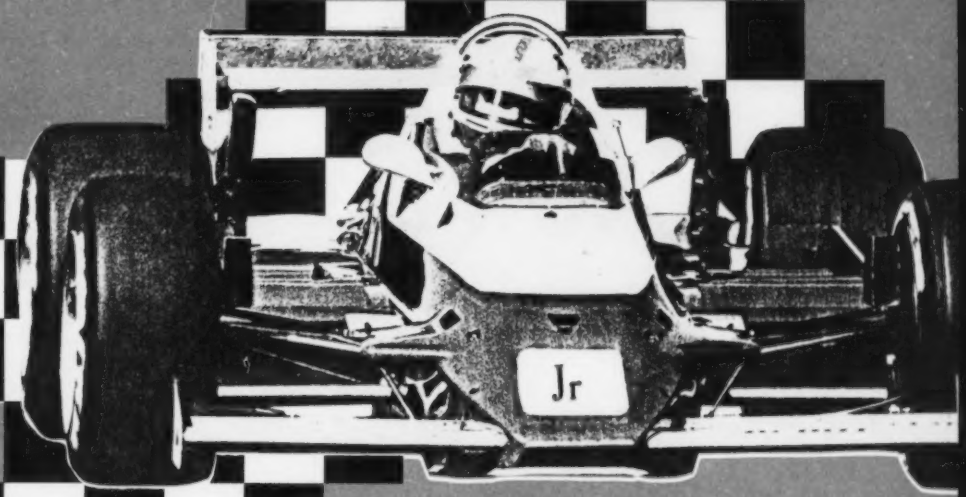
JANUARY 1982

DRIVER

like Father



like Son

New year
New cars

☆☆☆

"A PRETTY GOOD YEAR"

"THE YEAR of the PROFESSIONAL DRIVER"

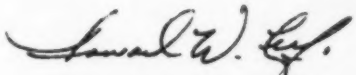
Memorandum to Drivers

As we closed out 1981, some of the accident figures may have indicated that we had "a pretty good year." I'm not concerned with numbers nearly as much as I'm interested in preventing the needless loss of life and countless tragedies which we inflicted on ourselves and our families. I'm talking about the type of accident where a young sergeant speeds away from a friend's house on a borrowed motorcycle leaving a helmet hanging on the fencepost. Two blocks away a dog darts in front of him, he loses the bike on some gravel, and he goes down striking his head on the curb. He dies of the head injury, and the helmet which would have probably saved his life still hangs on the fencepost. That helmet on the fencepost cost the Air Force a highly qualified mechanic and left a destroyed family with a widow and two children. You can change the names, ranks, circumstances and places but the result is the same — needless loss and tragedy.

"THAT WON'T HAPPEN TO ME."

It won't — only if you don't let it by stacking the odds in your favor. The odds of survival are improved by the driver who wears protective clothing and a helmet on any two-wheeled vehicle whether a bicycle, a moped, or a 1000cc road machine. Seat belts — none of the time-worn standard excuses will stand up against the statistics of seat belt wearers who have survived accidents. Child restraints — same argument and even more so — if you care about those little ones that ride with you, you should have them buckled up and/or in a good child restraint seat.

I've been talking about methods of reducing injuries during an accident. Obviously, the important thing is to avoid the accident in the first place. That means careful, sober, by-the-rule driving habits. I'm convinced that the large majority of Air Force mishap drivers are competent operators, but through momentary judgment lapse, allow themselves to be placed in an accident-vulnerable position. The professional DRIVER knows the vehicle, is prepared for the conditions, wears protective gear or restraints, and operates within the rules to avoid those accident-vulnerable positions. Let's make this the year of the professional DRIVER. Drive safe and survive.



HOWARD W. LEAF
Lieutenant General, USAF
The Inspector General

DRIVER

THE
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FOR THE MILITARY DRIVER

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Hon VERNE ORR
Secretary of the Air Force

Lt Gen HOWARD W. LEAF
The Inspector General, USAF

Maj Gen HARRY FALLS, Jr.
Commander
Air Force Inspection and Safety Center

Brig Gen LELAND K. LUKENS
Director
Aerospace Safety, USAF

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Dr. FRANCIS S. McGLADE
Director of Safety
United States Army

RADM T.C. STEELE, Jr.
Commander
Naval Safety Center

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JAN

VOLUME 15 NUMBER 8

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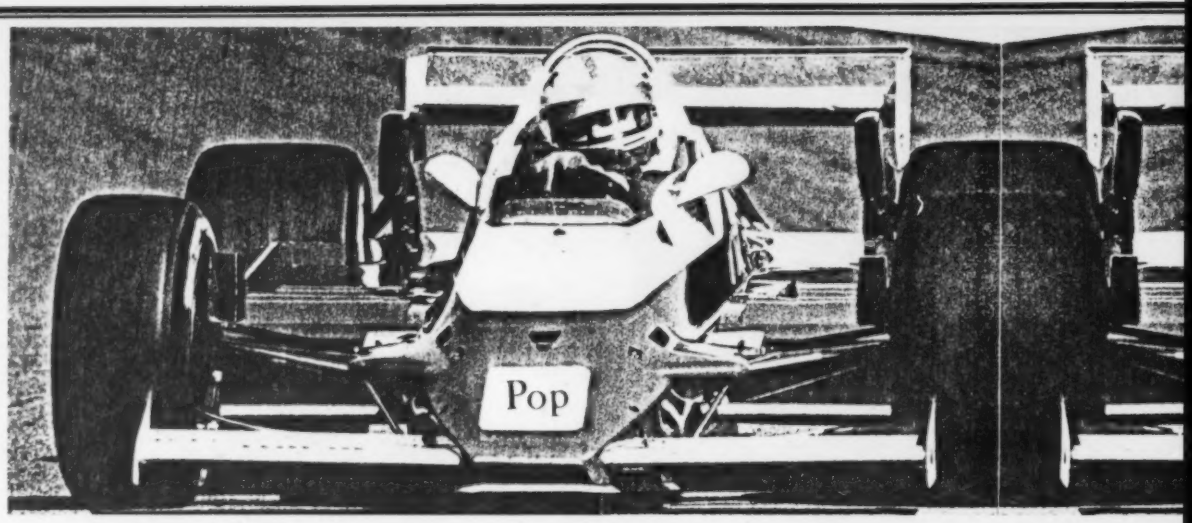
COL. WARREN L. BUSCH Chief, Safety Education Division		VIRGINIA HENDRIX Editor	
TSgt RON LATHROP Technical Editor	JERI ROOD Feature Editor	ALICE MILKEY Editorial Assistant	DON KELLEHER Art Director
	LORRAINE HAMBLEN Staff Artist	CLIFF MUNKACSY Staff Photographer	



like father

It's rough for a young racing driver to live up to the success of a famous racing father. But because of huge advances in racing safety, many of today's younger drivers not only are faced with this tough task, but may soon find themselves on the same track with their famous fathers.

There was a time when a racing driver's son grew up never having known his father unless the dad was lucky enough to retire before being killed. Such is the case of the Bettenhausen boys, Gary, Merle and Tony Jr., as well as Billy Vukovich, to name a few. Those whose fathers left the cockpit to retire include the likes of Johnny Parsons Jr. and Duanne "Pancho" Carter Jr.

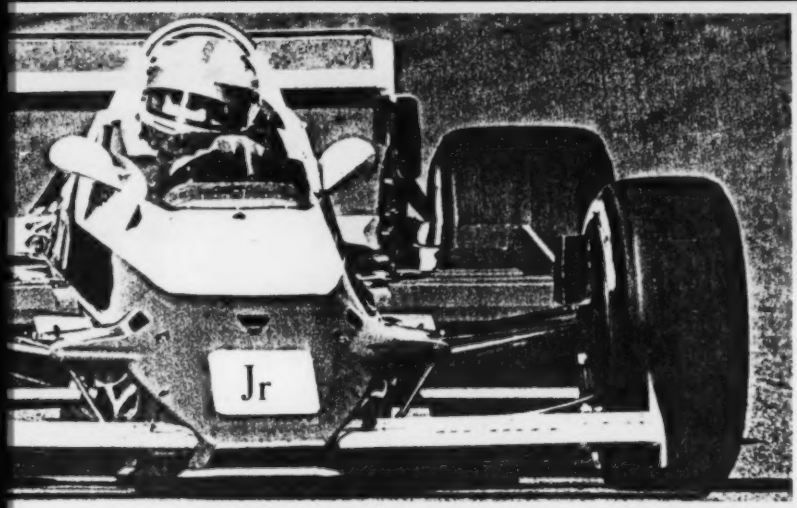
Stock car racing has almost always been an exception to the rule because of extra steps taken early in the sport's formation to protect the driver. These steps included seat belts, shoulder harnesses, roll cages and fuel cells. As a result, Elzie Wylie Baker Sr. and Jr. (Buck and Buddy)

Al Unser Jr.

Bobby Unser Jr.

(left) Al Unser Jr. is the 1981 Robert Bosch/VW Super Vee Champion. Super Vee racing is recognized as America's top training ground, having produced no fewer than six award-winning Indianapolis car rookies, and could be the stepping stone "Little Al" needs to race against his dad, a two-time Indy 500 winner. **(right) Bobby Unser Jr.** is "Little Al's" cousin and the son of a three-time Indy 500 winner. Like "Little Al," Bobby Junior has spent an apprenticeship in Sprint cars on half-mile clay ovals and currently drives Super Vees on road courses and paved ovals.

(right)
Mike Andretti had a coming together with another Super Vee driver at Riverside and lost his left front wing. Well, actually, the wing was pushed into the left sidepod where it blocked the radiator and caused the engine to overheat.



...like son

have shared the same racing track from time to time. And, of course, no stock car history lesson is complete without the three generations of Pettys: Lee, Richard and Kyle.

On the other hand there are tragic examples where the son is killed and the father continues. Such a case would be that of Jimmy McElreath and his son, James.

Among tomorrow's racing stars carrying famous names of today are Al Unser Jr., Bobby Unser Jr., Mike Andretti, John Paul Jr., Al Holbert, Geoff Brabham and Roger Penske Jr. The first three are, of course, sons of Indianapolis winners. The senior Paul is the 1980 World Endurance Drivers Champion, while the senior Penske was a famous American road racer in the early-60s who now heads a racing organization that has won Trans-Am and Can-Am titles as well as Indianapolis. Holbert's father was one of this country's hottest Porsche pilots in the late-50s and early-60s who won the first United States Road Racing Championship. Geoff Brab-

continued

John Paul Jr. discusses handling problems during Riverside qualifying. He was running fourth on the third lap of the race when a flat tire put him into the wall.

(left, below)
Al Holbert spent the final qualifying session of the Budweiser Grand Prix Weekend at Riverside helping his crew change a second blown engine. Despite an extra pit stop because of fuel feed problems, Holbert (#14) charged past Jeff Wood (#1) to win his third Can-Am race of the year by 1.008 seconds.

like father, like son

continued

ham is the son of three-time World Driving Champion, Sir Jack Brabham. That takes us back to Andretti, because his father has also won the World Driving crown.

The Unser boys have both spent time in Sprint cars like their fathers did and have made respectable showings. They are now running Super Vees, and in fact "Little Al" is the 1981 Robert Bosch/VW Super Vee Champion.

Michael Andretti is the newly crowned Sports Car Club of America Northeast Division Formula Ford Champion and has made impressive starts in Super Vee competition.

John Paul Jr. is one of the hottest drivers on the International Motor Sports Association Grand Touring circuit driving both Turbo-charged Porsche 935s and ground-effects Lola T-600s. In addition, he has some strong performances in Super Vee competition and European GT racing.

Holbert is a two-time IMSA GT Champion and has won six Can-Am races in three years.

The first year his father ran a Trans Am racing team, Roger Penske Jr. turned eight. Today "Kip" is a college student and shows the potential behind the wheel which could allow him to follow in his father's footsteps.

Brabham is the 1981 Can-Am champion, having won two races, finished second three times and third three times in 10 events. He was the 1979 Bosch VW Super Vee Champion and won the 1975 Australian Formula 2 championship.

"Kip" Penske runs Super Vee races when his college schedule permits.

Getting Strapped Into Your Work

Geoff Brabham, 1981 Can-Am Champion and son of three-time World Driving Champion Sir Jack Brabham, really gets strapped into his work. After he puts on his fire-proof underwear, coveralls and shoes he has to literally climb into his office: the cockpit of the V.D.S. 001 Chevrolet. Once seated he needs help fastening the six-point safety belts securely. Then he can put on his fire-proof hood and helmet. Then come the fire-proof gloves. Once the engine has been started, the car can be "unplugged" and the real work begins.

continued

Rabbit Racing

Wabbit Wacing ???

America's closest professional racing series is the Rabbit/Bilstein Cup featuring doorhandle-to-doorhandle competition among identically prepared, near-showroom-stock Volkswagen sedans. The winner is almost never decided until the last turn of the last lap and then only by inches.

Professional racing means the winner takes home money instead of just a trophy. In the case of the Rabbit/Bilstein Cup the winner gets $2,000 from the $10,000 purse. The money is put up by series co-sponsors Volkswagen of America (VoA) and Bilstein shock absorbers with additional support coming from Robert Bosch Sales Corporation and Goodyear.

In the interest of safety the cars must meet all Sports Car Club of America (SCCA) safety regulations. The cars are equipped with roll bars, fire extinguishers and driver's win-

(right)
Inside a Rabbit racer is a special seat (and no passenger seats) with full-race seat belts and shoulder harnesses. There is a padded roll cage, fire extinguisher and driver's window safety net. This driver also has a multi-faced mirror. One look at how close the competition is explains the need for a complete rear view.

(below)
Front-running Rabbits seldom get much breathing room. At Riverside's turn six, Karl Hacker leads his brother Gary (who went on to win this race, the final event at Phoenix and the season's crown), Peter Schwartzott as well as the rest of the hares and hounds.

Bill Lemmer got a little too wide in turn six, caught the wall and flipped his "Jack" Rabbit onto its roof without injuring himself, thanks to a strong roll cage.

dow nets. After two cars rolled with little damage at a recent Riverside, Calif., race, VoA's Special Vehicles Department is considering making roll cages mandatory for the 1982 season. Of course, the drivers must wear approved helmets, fire-proof coveralls and underwear. Additionally, they are held in their special racing seats by extra-wide racing seat belts and shoulder harnesses.

In addition to the safety modifications, the only changes found inside the Rabbits are temperature gauges.

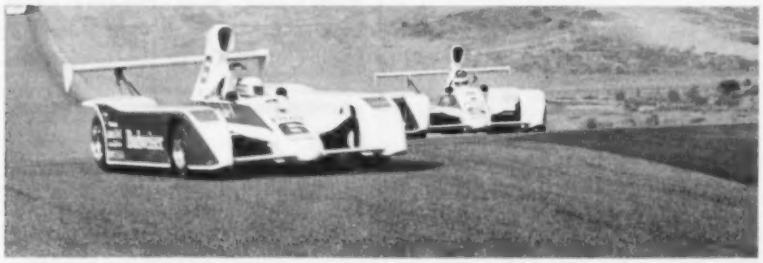
There are two major "performance" modifications made to the engines. The first is a set of Bosch spark plugs. The other is a baffled oil pan to keep the oil from being forced away from the pump pickup during cornering.

For improved handling the cars are equipped with anti-sway bars and a small front spoiler. The tires are Goodyear NCT radial street tires with most of the rubber shaved off. The primary suspension modification is the installation of special-valved Bilstein gas pressure front inserts and rear shocks — thus the name: Rabbit/Bilstein Cup.

On the last lap of the Rabbit race, Dick Kaufman lost control of the Hacker Brothers' rental Rabbit. During race morning warm-up, Kaufman rolled this same car. The front bar of the roll cage not only protected him, but it kept the roof straight enough that windshield replacement was easy.

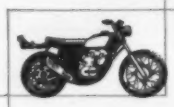
"Winning isn't everything, it's just all there is."

P.L. Newman (Paul to you movie-goers) is one of the best amateur road racers in this country, having twice won national Sports Car Club of America championships. He finished second in the 1979 LeMans 24-hour race and supervises his Budweiser Can-Am team in North America's most prestigious road-racing series. "Winning isn't everything, it's just all there is," says Newman. "Show me a good loser, and I'll show you a loser."



Former world class downhill skier Teo Fabi (#6) leads his Paul Newman Budweiser March teammate Bobby Rahal into Riverside's turn seven. "With skiing, it is more easy to have little accidents," says Fabi. "With racing it is more easy to have big accidents."

(left)
Bobby Rahal limps to the pits on a flat right rear tire. This was Rahal's third tire problem of the afternoon and caused his retirement from competition after 19 laps. Moments later, Fabi pitted for fuel and a new left front tire. Unfortunately, the newly-changed tire stayed on the car only until it reached turn two. There it flew off the March 817 at more than 100 mph, while Fabi wrestled the car to a stop, out of the race.



too CLOSE FOR COMFORT

A TYPICAL MISTAKE

I had an experience that taught me a lesson that may be valuable to your readers.

During a short TDY to Edwards AFB, Calif., I was driving my motorcycle on the base. Because I was looking for the POL yard I was not paying attention to the road and I soon found myself about to run a stop sign at about 50 mph. To make things worse there was a van coming into the intersection on my right. I'm lucky he was "looking out for the other guy," because I couldn't get stopped in time. The van stopped short of the intersection as I went into it with my rear tire locked up. The motorcycle's swaying got real violent and I released the brake in time to straighten out and go safely on my way.

I made two mistakes. The first was that I was not paying attention to the road and signs. The second: When a panic stop became the solution I did not use the front brake at all, although the front brake is where most of your braking power is.

I think I learned from the experience. About a year later I had another emergency. I was riding at night when a St. Bernard jumped into my path out of the darkness. I managed to stop in time, thanks to correct use of the brakes — first the rear, and a moment later the front. I have ridden a motorcycle for 2½ years and I plan to ride for a long time.

I am a motorcycle rider myself, and I know that some think that the front brake will flip your bike over forward. But it's just not true; as our friend says, the majority of your braking force is in the front. Don't be afraid of that front brake. Train yourself to use it and use it correctly. Additionally, releasing the rear brake abruptly when the motorcycle is fishtailing could cause a fall, throwing the rider in front of the motorcycle.

As to his other mistake, that is also a matter of training yourself. As a motorcycle rider, you must watch not only where you're going but also what everyone else is doing. That may not seem fair, but others will not watch for you.

This experience is typical of many fatal accidents involving motorcycles. The only difference in this one is that the other driver was watching and was able to stop. Often they can't stop, and often they don't even see you. Be alert and ride smart.

LELAND K. LUKENS
Brigadier General, USAF
Director of Aerospace Safety

FIRE & water

We often mention it is unlikely you will ever have an accident involving a fire or submersion in water. But many people don't believe that. They have watched television and movies for years, in which every time a car hits a pole or another car, it explodes in flames. And they have seen hundreds of video and movie situations in which a car goes off a bridge into the river or ocean. In real life this doesn't happen very often. But fires and submersion are much more visually dramatic than what really happens — a smashed car with a hurt driver.

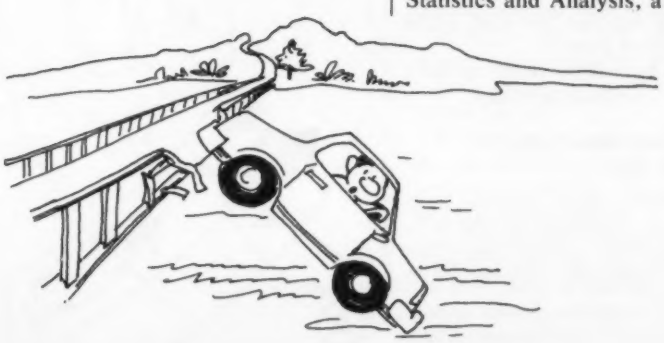
What the viewers of the TV and movie crashes don't understand is that they are getting a distorted picture. Here's the real picture, without all the drama of the films. These figures are from the National Center for Statistics and Analysis, a branch of the National Highway Traffic Safety Administration.

Fire occurs in only .21 percent of all accidents, or about *one out of every 500 crashes.* Unless you are a policeman, you will never *see* 500 accidents, much less be involved in them.

Submersion in water is even more unlikely. *Submersion occurs in only one out of every 100,000 accidents.*

If you put the two together, NHTSA says a "generous figure" is *one quarter of one percent.* That's not much of a chance. So you're not very likely to be trapped in a burning or submerged car.

In *any* accident, if you wear your seatbelt you have a better chance of remaining conscious and unhurt, and therefore you can get out safely and quickly.



FRONT WHEEL DRIVE SKID control

Cars are getting smaller, but people are getting larger, so the trend is toward more cars with front-wheel drive. Front-wheel drive permits weight and space savings.

For the most part, front-wheel drive handles just like rear-wheel drive. However, there are some differences, and a skid is one.

Skids are much more of a problem now, in winter, when sudden turns, locking the wheels while braking, or sudden acceleration may cause the car to skid. With front-wheel drive, when the front (driving) wheels lose traction, the car tends to go straight, no matter which way the wheels are turned.

Generally, skids are caused by too much speed. To avoid winter skids, drive slowly. Slow down for turns or curves in the road, and always watch for changing road surfaces.

The following instructions for handling skids with a front-wheel drive car are from the Saab Car Division of Saab-Scania.

For a rear-wheel skid (Diagram A):

1. Steer in the same direction the rear wheels are skidding.

2. Disengage the clutch on a car with a manual gearbox or take your foot off the accelerator pedal on a car with automatic transmission.

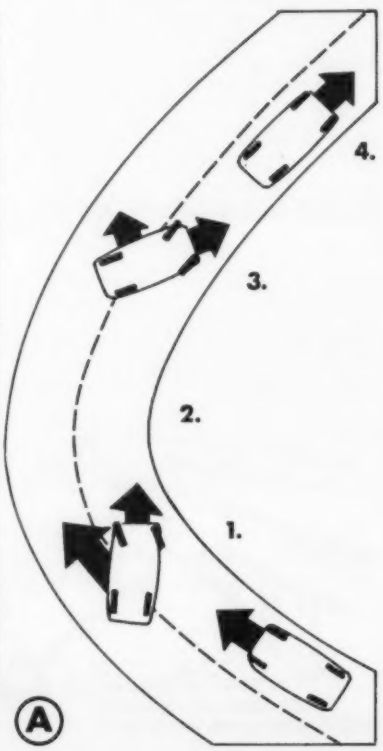
3. Wait until the rear wheels have stopped skidding and then steer the car gently back, so that the front wheels point straight ahead when the rear wheels are back on course.

4. Release the clutch and depress the accelerator gently so that the engine speed matches the road speed and accelerate gently.

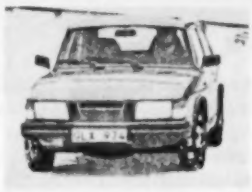
There is no real risk of the car skidding in the opposite direction.

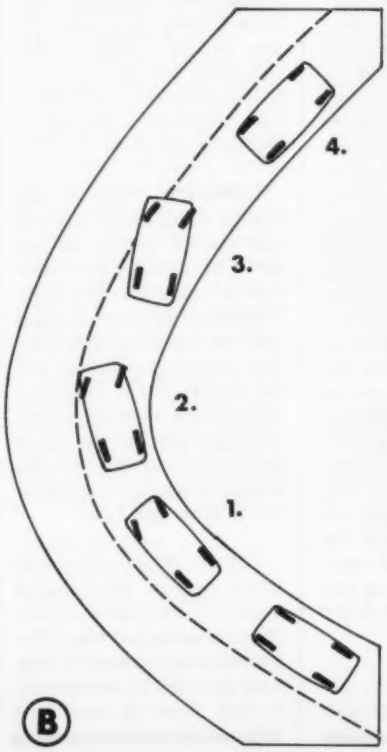
For a front-wheel skid (Diagram B):

Front-wheel skids are less common and are therefore thought to be more dangerous, but Saab says they are easier to correct, with no danger



Saab, which builds only front-wheel-drive cars, furnished the information for this article.





at all of a skid in the opposite direction. (These instructions, by the way, are also true for rear-wheel drive cars.)

1. Don't move the steering wheel.

2. Disengage the clutch on a car with a manual gearbox or take your foot off the accelerator pedal on a car with automatic transmission.

3. Wait for the front wheels to grip again. Since the wheels are skidding sideways they exert a certain braking effort. As soon as the speed has dropped off enough for the road surface or the curvature of the bend, the car will start to steer again.

4. When the front wheels have gripped again, steer the wheels carefully to make up for what you have lost in the skid.

5. Release the clutch and depress the accelerator gently so that the engine speed matches the road speed and accelerate gently.

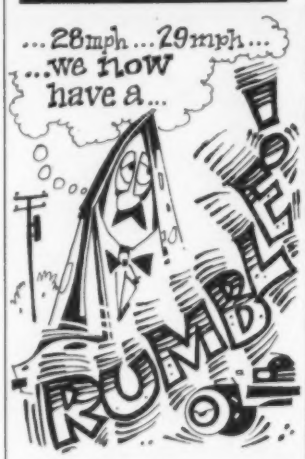
Saab cautions, on cars with automatic transmission, not to try moving the shift lever to neutral in any skid unless you are certain of finding neutral immediately.

HOW IT HAPPENS!

Two staff sergeants are traveling toward their overseas base. As they come around a curve, they encounter another vehicle that is passing a small pickup truck. The driver swerves to avoid the passing car and collides head-on with the pickup. The car that was attempting the pass leaves the scene of the accident. The driver of the Air Force car dies of his injuries that day and the other staff sergeant is hospitalized and dies three days later.

We don't know why the sergeant swerved to the left rather than to the right. If he had moved right he might have avoided both cars, although there is no way to be sure. Mentally put yourself in a few imaginary crisis situations to help you decide what to do when real crises come along.

tteecc!h!h double tech with tsgt ron lathrop



COMMENT: My six-year-old dream car developed a problem about two years ago. At about 30 mph a low rumbling vibration occurs that seems to come from the transmission. When I accelerate beyond that speed it goes away. I had the transmission rebuilt and still no luck. Mechanics say, "Don't worry about it." But being a very picky driver I worry about every sound that my wheels make.

REPLY: Because the noise has been there two years, I don't need to tell you to be patient because it is going to take a long time to isolate the problem. Transmission area noises can be real enigmas because the transmission may just be a sounding board transferring the rumble to the passenger compartment. Basically, I suspect an out-of-balance drive shaft. However, it could be the joints, the rear axle, exhaust system, on and on and on.

COMMENT: Your remark in the October 1981 issue "by the way, an engine has either a timing chain or timing gears, not both," sounded like a put down. The timing chain *does not set the timing* between the cam and crank shafts, but *simply holds timing while driving the camshaft.* The timing is set by aligning the timing marks on either the shafts, shaft ends, or the gears attached to the shafts depending on the make and model engine. This is done before or while the timing chain is put in place. The timing gears are either part of the shaft or are keyed so that they fit only one way. Extreme care should be used to ensure the timing marks are exact and the gears are aligned to prevent binding and possibly breaking the gears and/or the timing chain. So you see an engine does have both a timing chain and gears. As an added note, if you are replacing a timing chain replace the gears also, and vice versa. After all, what good is it to replace one if the other is worn or about to fail and/or ruin the new parts you just put in? You will just have to re-do the job, or have it done again and pay the price twice.

COMMENT: You say an engine has either a timing chain or timing gears, not both. What are those things called that drive the timing chain?

REPLY: Apparently many of you call sprockets "gears." Gears are wheel-like parts with teeth cut into the rim. Direct meshing of the teeth of two gears enables one gear to drive the other, thus transmitting power. A sprocket or sprocket wheel is a toothed wheel that engages with a conveyor or power chain to transmit power and motion. Timing gears are usually found only where long life and hard service are expected such as on commercial vehicles and racing engines. Using gears is generally a noisier method than using a timing chain or a cog belt to drive the camshaft.

COMMENT: Our new car hesitates. Even after the 1,000-mile checkup it hesitates. Is there anything you can recommend that might help?

REPLY: Hesitations are usually the result of vacuum leaks, either because of cracked or broken hoses, or faulty parts. Visual inspection of all hoses and connections is the first step, then a complete vacuum system check is required. Other problems that contribute to hesitations include binding carburetor linkage, throttle linkage, choke linkage or fast idle cam. The float could be set improperly or there might be a cracked or broken ignition wire.

COMMENT: Out of the middle of nowhere my car has started giving off the smell of rotten eggs. I have noticed this odor from other cars five or six years ago, but none as bad as mine is now. The dealer mechanics tell me that my car is in perfect tune. They set the engine at a very fast idle and the smell went away, but when the idle is slowed down, the smell returns. What can I do?

REPLY: There has been all kinds of bad advice and answers to this problem lately. These answers run from, "the system picked up a plastic part, it will burn off," to "the convert- is new. They all smell that

way. It'll go away." What is happening is that some raw gasoline is passing into the exhaust and reaching the catalytic converter. There a chemical reaction between the sulphur in the fuel and the ma-

terial in the converter produces hydrogen sulphide gas with its very obnoxious "rotten egg" odor. The problem is getting worse because we are using more and more high-sulphur content oil to refine into gasoline as we try to cut our dependence on low-sulphur oil from the Middle East.

To eliminate the odor, your mechanic probably set the fuel-air mixture leaner, and then had to set the idle higher so the engine would run on the lean mixture. Then the mechanic who lowered the idle had to richen the mixture. I suggest you retard the timing a couple of degrees in an attempt to burn all the fuel before it gets as far as the converter.

EDITOR's NOTE: If you have a general interest automotive comment or question that you would like a reply to, and feel others could use the knowledge also, send it to:

DOUBLE TECH
HQ AFISC/SEDD
Norton AFB, CA 92409

Be sure to include all available information which may help in finding the correct solution.

don't aim too LOW

You've often seen cars that are weaving in their lane of traffic. Sometimes the drivers are under the influence of alcohol or some other drug. But sober drivers weave too, and they can be annoying if they get too close to you.

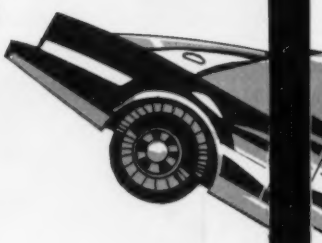
Sometimes they just lack driving skill, specifically the skill of staying centered in their own lane. They may watch the edge of their hood or fenders in relationship to the road edge or the dotted lines of the lane markers. If so they have their sights set too low.

The American Automobile Association suggests that you follow an imaginary line down the center of your lane some distance ahead of your car. You will steer along that line and your movement within your lane will be minimized. You'll be a steadier driver and you'll stay clear of other cars.

Of course, if you're traveling in a narrow lane you should keep to the left. There is a large area of the road immediately around the car that you cannot see, especially to the right side. Keep left and make quick glances to the right side to make sure you're not getting too close to whatever is there.

NEW CARS

1982 PERFORMANCE



"Son of pony car," or zero to 60 in seven seconds

After some years of concentrating on fuel economy, the auto industry is returning its attention to performance. Robert Lund, general manager of the Chevrolet Division of General Motors Corporation, says, "The public's desire for fuel economy is a 'given.' " That is, people want fuel economy as much as they want, say, wheels on the car. Lund says that performance will become more important in the future than it has been in the past few years.

And so performance is back. Remember the hulking, fire-breathing, two-ton steel monsters of the late 1960s — the 'Cuda, the Z-28, the Mach I, and all the rest? These are what were called the "muscle cars," the automobiles for the performance-minded young drivers. They were engineered for speed and they delivered just that. What they lacked in practicality they made up for in power. What they lacked in fuel economy they made up for in acceleration. What they lacked in social acceptability they made up for in . . . well, you get the picture.

In the 1970s various factors, chief among them the high cost of fuel, killed off all but a few of the old "muscle cars" and "pony cars," and by the end of the decade the few that remained just weren't the same.

Now it's 1982 and the pony cars are back. Ford's Mustang can hit 60 mph in about seven seconds. General Motors is offering its F-body twins, the Chevrolet Camaro and the Pontiac Firebird, in downsized, lighter versions. The Corvette will change completely in 1983, with its new engine already being used in this year's car.

To tell the truth, "pony cars" is probably a better title for these new cars than it was for the old ones. The old ones were wild stallions, capable of outrunning anything on the road. These new ones won't challenge, say, a 1965 GTO, but they could go a long way toward your first 14 speeding tickets.

And that's precisely the problem. It has been said that performance runs through the automotive industry in 20-year cycles. Some are asking, "Will this renewed emphasis in Detroit on performance also bring back the old days of drag racing in the streets and a higher accident rate for young drivers?"

But how similar is today to the 1960s, when performance last appeared?

A lot has changed since then. The supply of petroleum, once thought inexhaustible, is now guarded by supplier and consumer alike. And it's now four or five times more expensive. This has led to cars that are more economical to run. Cars are smaller and lighter and their engines are less powerful.

FORD MUSTANG

Tires are also much different. The highly sophisticated radial tires of today were introduced after the first pony cars were marketed. They conform to the road better and therefore

continued

IS BACK

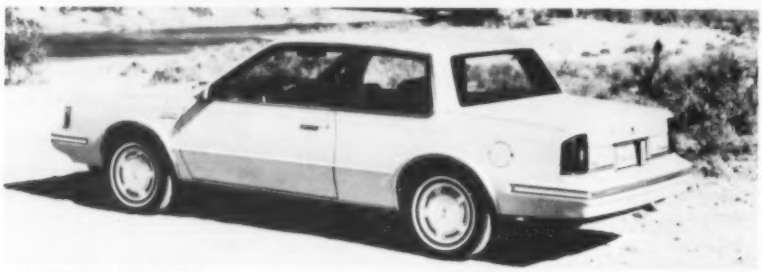
CHEVROLET CAMARO

PONTIAC FIREBIRD

Performance equation: An ounce of precaution can easily balance a ton-and-a-half of pain. Performance vehicles such as the all-new Chevrolet Camaro and Pontiac Firebird as well as the Ford Mustang can be operated safely as long as the driver expends a little energy and thinks ahead. If the driver doesn't think about what might happen next, then there can be pain: the pain of writing-off a beautiful 3,000-pound car; the physical pain of a personal injury; or the emotional pain of hurting passengers and others.

(above)
There, of course, is also the pain of a traffic ticket and increased insurance rates.

BUICK CENTURY



OLDSMOBILE CIERA

PONTIAC 6000

CHEVROLET CELEBRITY

DRIVER Road

DRIVER's idea of a road test is a little different from that of the other automotive publications. DRIVER checks out the usual things — acceleration, handling, cornering — but it pays special attention to things other magazines may ignore or only touch on.

Some of the things DRIVER examines are the visibility of the controls and the road from the driver's seat, the comfort

Make a grade. General Motors' engineers have completed this special assignment and are hoping the American public will grade their work the same as they coded these cars — "A" models. The Buick Century, Oldsmobile Ciera, Pontiac 6000 and Chevrolet Celebrity are all efficient energy managers with standard 2.5-liter four-cylinder engines or optional 4.3-liter V-6 diesels. Optional V-6 gasoline engines are 2.8-liter models for Chevy and Pontiac, while Buick and Olds have 3.0-liter models. Occupant protection has been designed in via effective crash energy management, not added on.

Test?

Ford's 1982 Mustang is capable of hitting 60 mph in about seven seconds. It is only one example of the revitalized interest in performance at the major auto makers.

and adjustability of the seatbelts, and the braking.

Of course, all automotive publications test the brakes, but to DRIVER brakes are far more important than acceleration. Most of the streaks of rubber left on the General Motors test track in Mesa, Arizona, were caused by our technical editor's enthusiastic use of brakes. Panic stops of this sort are an excellent way to test not only the brakes but also how the seatbelts would work in an emergency.

Our inevitable testing of the seatbelts has caused comment more than once from the auto manufacturers' representatives. While other reporters are looking at the lines of a car or popping the hood latch for a look at the engine, we are inside, moving the seats and adjusting the belts for the most comfortable fit. With a five-inch variance in height, our writers get both the taller person's vantage point and the problems of the shorter person with shoulder harnesses rubbing on the neck.

But don't get the idea we ignore performance entirely. At a recent test-drive of the Ford Mustang, DRIVER's technical editor had the second fastest time of the day through a short slalom course, only .19 seconds behind the time of Motor Trend's editor, John Dianna. We're no slouches.

perform better, and they also conserve gasoline because they roll easier.

Brakes have also changed in the past 15 or 20 years. Most brakes today are disk brakes. The newest brake systems feature a front-wheel first lock-up that reduces the possibility of loss of control in hard braking.

Also in the past 15 to 20 years, safety has become more of a "given." People expect their cars to be safer today than they were years ago, and the car makers have done everything they can to comply with the public's wish. Padded dashes, collapsible steering columns, five- and 10-mile-per-hour bumpers have all added some measure of safety, but the biggest gain has been the seatbelt.

Seatbelts were first offered as standard equipment in 1966, and when shoulder harnesses were added, they were cumbersome two-buckle units that were time-consuming to operate and confining to wear. Today's belts fasten quickly, adjust easily and allow for movement by the wearer, yet they lock up instantly in the event of rapid deceleration or collision.

Indeed, the only thing that the manufacturers could do to offer increased protection to the occupants (and here we're ignoring the highly controversial airbags) is to make cars larger and heavier. Large, heavy cars are inherently safer in crashes than are small ones. But the large cars consume more fuel, and the trend has been, and will continue to be, toward smaller and lighter cars.

So the automotive world is very different from what it was during the last performance craze. But did you notice that some of the innovations that contribute to increased fuel economy also have an effect on performance?

Of course, the same weight reduction that saves gasoline will also help performance. Other things being equal, a 2800-pound car will out-perform a 3400-pound car. Spoilers and aerodynamic styling, which the automakers have added for raising the Corporate Average Fuel Economy (CAFE) also aid performance by increasing the downforce on the car and enhancing its road-holding capabilities. Even the seatbelts help. The belts hold the driver more firmly in place, and therefore help him control the car. And we've already mentioned radial tires.

We could go on noting the differences between 1967 and 1982 — the 55-mph speed limit, the greater enforcement of traffic laws, and the like. Yet we think the most important factor in the equation is the same now as it was then — the people.

The problem is not so much the car and how it performs as it is the attitude of the driver. Someone who is

continued

Extra Measure of safety. Subaru's Dual Range On Demand four-wheel-drive transmission and Hill-Holder clutch provide an extra measure of safety in these wagons.

inclined to take chances when he drives will take chances whether he is in a Porsche 924 or a Mazda GLC. It all comes down to responsibility. A responsible driver will drive in a reasonable way no matter what he's driving.

We think performance cars, with their crisper handling and eye-catching styling, are more fun to drive and to own. And we think they can be driven responsibly and safely. But there are a lot of people who think that because they have a fast, flashy car they can drive just like the "Dukes of Hazzard." But they can't and they shouldn't try.

We'll have to wait before we know whether the return to performance will hurt the driving records of young drivers. It doesn't have to. It all depends on the young drivers themselves.

Take it easy.

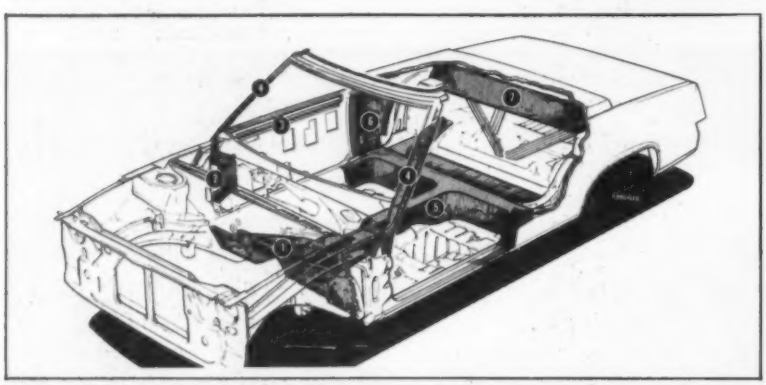
(below)
What's up? Chrysler Corporation follows their introduction of the all-new Dodge 400 and Chrysler LeBaron with convertible models of both.

CHRYSLER LE BARON

CHRYSLER LE BARON CONVERTIBLE

DODGE 400

DODGE 400 CONVERTIBLE



To meet all Federal impact and crush standards, reinforcements have been added. These include: (1) front floor pan reinforcement, (2) and (3) door reinforcements, (4) reinforcements in A-pillars, (5) unique wishbone-shaped "Torque Tube" in rear floor pan, (6) new, reinforced rear quarter inner panels, and (7) support struts and redesigned shelf in rear seat area. Because there is no fixed metal roof, the three-point seatbelts loop over the bucket seat backs and are anchored in the quarter panel area.

Special Seats

When cars were larger, designing for the comfort of the occupants was no problem. There was plenty of space to work with. Now, however, the smaller cars demand more emphasis on "human accommodations" or "human factors engineering."

"We still have to supply the necessary interior space," said Dr. Susanne Gatchell, Engineer-in-Charge of the Human Accommodations Department of General Motors' Fisher Body Division. "We try to assure that interiors are 'friendly'; that there are no sharp edges or uncomfort-

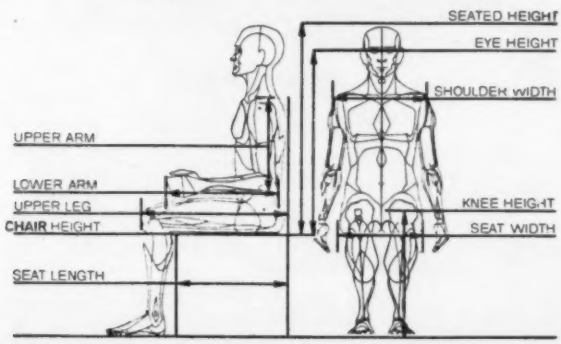
able surfaces. We encourage designs that offer comfort and convenience for passengers of all sizes. We want comfortable seating, for example, and controls within reach so they can be operated with minimum effort."

One thing this means in the revitalized performance-car field is different seats. And for Chevrolet's new downsized Camaro, we mean literally "different." As an option, Chevy is offering a special driver's seat by Lear Siegler. It has controls to adjust for lumbar and thigh support, as well as lateral support for the back and legs, in addition to the headrest and reclining features. The right bucket lacks all the additional adjustments, because a passenger wouldn't need them.

Over at Ford, the 1982 Mustang and Capri are available with Recaro seats.

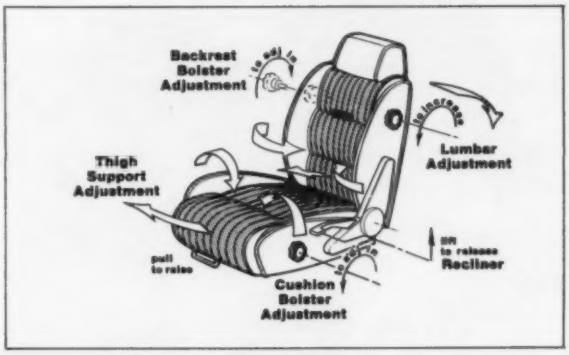
That's what we call "accommodating."

This device may look like an electric chair from an old James Cagney prison movie, but it's nothing quite so sinister. It's actually an "anthropometer," a measuring device used to aid engineers in designing comfortable car interiors. It takes the measurements shown in the drawings.



Roll back. Perhaps the best news American Motors Corporation has, besides significant fuel economy improvements throughout their lineup, is the 11.4 percent price reduction on 1982 Renault Le Car base retail prices from 1981 model prices.

Versatile line. Most manufacturers offer a complete line of passenger vehicles. In the case of Mazda, they anchor the corners of their line with GLC economy hatchbacks, sedans and station wagons. Across the center are their international-size 626s focusing attention on their sleek rotary engine RX-7 sports car.



Highly adjustable seats with support for the back and legs, like this one from General Motors, offer much more comfortable driving, especially on long trips.

continued

NEW CARS

MERCEDES-BENZ 380SEC

JAGUAR XJ-S

CADILLAC ELDORADO TOURING COUPE

LINCOLN CONTINENTAL

Mega-bucks. If you really want comfort, you have to pay for it, and as long as there are Americans willing to pay there'll be manufacturers willing to build. Of course, performance is taken for granted in this price range. There is the winning tradition of the Jaguar XJ-S; Mercedes-Benz completely new 380SEC; the executive's morning rush-hour racer, Cadillac Eldorado Touring Coupe; and a new, slim, trim and plush Lincoln Continental. What isn't taken for granted is fastening your seatbelts: Do it.

ASTON MARTIN V-8 COUPE

CHEVROLET S-10 courtesy of TOM BELL CHEVROLET

SAAB 900 TURBO

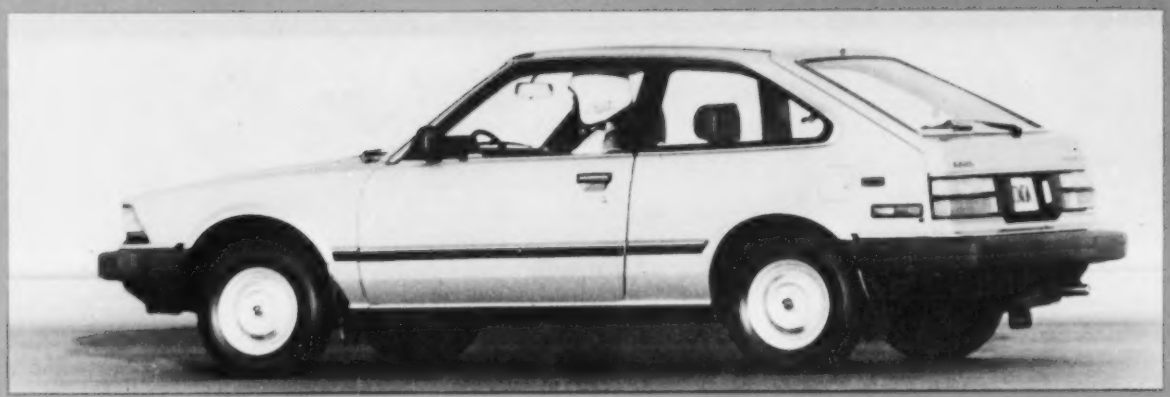
James Bond doesn't drive an Aston Martin anymore. Although the new V-8 coupe is fast, beautiful and well-mannered, there are only five hand-built each week with the starting price tag at $95,000. 007 now has a Saab 900 Turbo for personal transportation. It's black, of course.

DODGE RAMPAGE

FORD RANGER

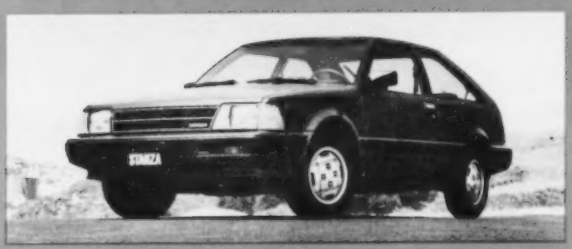
JEEP SCRAMBLER

New ballgame: The Big Three are fielding their own compact pickup trucks now. Chevrolet was the first to attempt a full-court press with the S-10, Dodge was next to take a shot with the front-wheel-drive Rampage and Ford got in truck-to-truck coverage with their 1983 Ranger. Jeep has been goaltending on the mini-truck court since last year with the Scrambler. Driving a new pickup truck for the first time is just like facing a new center: you must learn his moves. Knowing what the center and the truck can and cannot do is essential to staying in the game. Start slowly and practice, or you'll get blown right off the court.



HONDA ACCORD

TOYOTA CELICA SUPRA



NISSAN STANZA

VOLKSWAGEN QUANTUM

What's new. Don't get the idea that the competition is standing still, even though some of them define "performance" differently. The new Honda Accord has improved mileage, more interior room, crisp aerodynamics, a longer wheelbase, greater width and more luxury. At Datsun, there's more than the name change to Nissan. The Nissan Stanza represents a global approach design aimed at an increasingly energy-conscious world. Toyota blended sleek styling with advanced engineering to "satisfy performance enthusiasts" with their new Celica Supra. And Volkswagen has a new flagship — the Quantum. In station wagon form, it has room for five adults and lots of cargo while offering "exceptional" acceleration, economy and reduced interior wind noise.

what's that NOISE?

When it's running good it goes: Frumma frumma frumma, wow ow ow ow ow OWOW, aaaaaaaaaaaaaaa squee! aaaaaaaaaa, pock - splat - pock - splat. But when it's not, it sounds like this: Creak-graunch, creek-graunch, Wow wow - eeek - wow woweek - wowowow -eek, aaaaaa uuuuuu haaaaaa uuuuuu haaaaaa, chippa chippa.

Deciphering other peoples' interpretations of the noises their cars make is a major problen for every backyard mechanic. But once the noises have been translated, they are only a small clue as to what's wrong.

These noises should never be treated lightly, either. These unusual sounds can be very distracting to the driver; distracting enough to lead to a near miss, minor accident or even a major accident.

In the October 1981 DRIVER we listened to general engine noises and followed that with other general vehicle noises in the November 1981 issue. December's noises were provided by American Motors, Ford Motor Company and Chrysler Corporation vehicles. In this final installment we'll listen to noises unique to certain General Motors cars and then diagnose the problems and cures.

BUICK

STARTER NOISE

■ **1972-76 V8.** Distance between starter pinion and flywheel is too great or too small. The starter armature may be bent or unbalanced. There is also the possibility of a defective clutch.

ENGINE KNOCK

■ **1975-76.** If the knock occurs at 1000 rpm when the engine is warm and under a light load, it may be caused by excessive clearance (more than .0015-inch) in the number one main bearing.

CHATTER ON ACCELERATION

■ **1975-76 V6.** The starter heat shield may be grounding out and vibrating against the exhaust pipe flange.

FUEL PUMP NOISE

■ **1971 LeSabre.** Install an air dome (part #1239890) and a "T" fitting to stop the noise.

CRUISE CONTROL VIBRATION

■ **1977 LeSabre V6.** The noise occurs when the cruise control is engaged. This is caused by the power unit hose contacting brake components. Reroute the power unit hose and strap it to the brake master cylinder cover retainer.

REAR BRAKE CLUNK

■ **1980 Skylark.** This happens during light brake pedal pressure. It is caused by a slight in-and-out movement of the brake shoes. This is the result of a "screw" type machined inner brake drum surface and will usually self-correct with use. However, in some cases it may be necessary to remove the drum and turn it, removing only enough metal to eliminate the "screw" effect and smooth the inner surface.

PART 4

REAR DISK BRAKE MOAN

■ **1979 Riviera.** This vibration or low-frequency noise may be heard during low-speed cornering and occasionally during other conditions. It is caused by the caliper parking brake return spring vibrating and transmitting through the cable into the passenger compartment. Installing two pieces of closed cell foam tape inside the return spring should correct the problem. But be sure to check the parking brake to see that it is functional after installing the tape.

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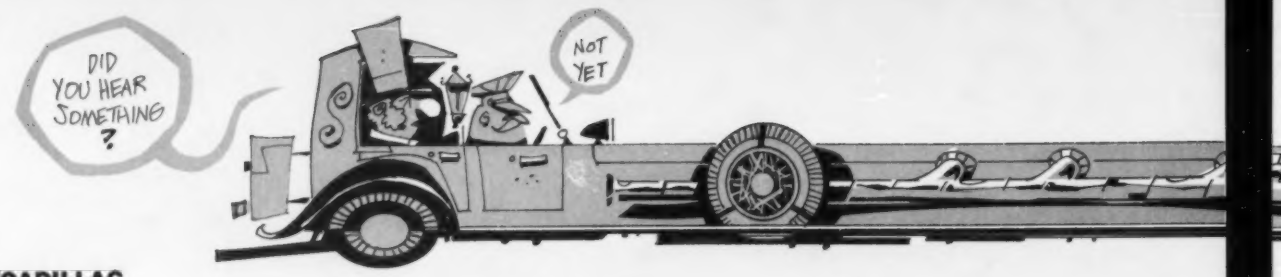


CADILLAC

EXHAUST NOISE, SPARK KNOCK AND/OR BUZZING NOISE

■ **1975-79 EFI-equipped vehicles.** These engine compartment noises may be accompanied by hesitation and tip-in stumble. This may be the result of a broken brazed connection on the Exhaust Gas Recirculation (EGR) Back Pressure Transducer Valve. A special retaining clip (GM Part #1617054) can be installed on the valve diaphragm to mechanically secure the exhaust tube in position.

ENGINE SHUDDER

■ **1976-77.** This is a severe condition lasting two to three seconds during hard acceleration. It is caused by a kinked vacuum hose trapping the vacuum in the primary vacuum break.

ALTERNATOR NOISE

■ **1971.** Misalignment of the rear end of the rotor and rear bearing may be causing excessive bearing noise.

■ **1970-75.** The slip rings may have flat spots because of incorrect polishing.

STARTER NOISE

■ **1972-75 all models except Eldorado.** A high-pitched starter whine after the engine fires and as the key is being released is caused by the distance between the starter pinion and flywheel being too small or a flywheel with excessive runout. A high-pitched starter whine during cranking before the engine fires is due to the distance being too great.

ENGINE KNOCK

■ **1975-76 all models except Seville.** This sounds like "lifter knock" or a fuel pump "rap." If the bolt in front of the fuel pump arm and just above the water pump locating boss is too long, it may interfere with the fuel pump arm on the down stroke.

■ **1976 Seville.** An engine knock or pulsation noise coming from under the hood may actually be the windshield washer fluid container grounding out on the air conditioner compressor relief valve. Either reposition the valve or the container or both.

ENGINE BOOM

■ **1978-79 gasoline-engine Seville.** There are four areas that require inspection and possible correction.

■ Make sure the air conditioner hoses are not grounding against each other or the coolant reservoir bottle.

■ Check to be sure the catalytic converter hanger is not overloaded. A gap is required between the metal hanger and its rubber insulator.

■ Check the transmission-to-engine bolts (micro-encapsulated) to be sure they are torqued to 25- to 34-ft. lbs. and then backed off a half-turn.

■ Check all engine accessory mounting bolts to be sure they are properly torqued.

VALVE TRAIN NOISE

■ **1970.** Rocker arms may be moving (walking) from side to side or the valve springs may have been installed upside down.

BRAKE POPPING OR BUZZING

■ **1979 Eldorado.** This may be caused by a resonance in the vacuum system when the brake pedal is applied. Install a brake system filter (part #17056236) in the power booster vacuum line to correct.

REAR DISK BRAKE MOAN

■ **1977 Seville, Brougham.** This can be corrected by installing an inboard shoe retainer spring (part #18002760) in the piston groove and over pad. This operation requires removal of the caliper pads.

BUZZING IN PARK AND/OR NEUTRAL

■ **1970-78** equipped with Turbo Hydra-Matic 425 (front-wheel drive). A pressure regulator valve orifice cup lug may be missing.

REAR SUSPENSION LUMBERING

■ **1976 Seville.** This is evident on bumpy roads and is the result of a loose rear spring damper at the front eye. Retorque the screw to 20 ft. lbs.

PARKING BRAKE RUBBING OR CHIRPING

■ **1976 except Fleetwood, Eldorado.** This noise is in the area of the top left side of the instrument panel. It's caused by the parking brake conduit rubbing on the under body. Once you have determined where the rubbing is occurring, slip a 5/16-inch diameter piece of rubber hose over the conduit at that point.

CHEVROLET

EXHAUST POPPING

■ **1970-71.** Problem may be the malfunction of the Transmission Controlled Spark (TCS) system or the Combined Emission Control (CEC) solenoid.

■ **1977-78 140 cubic inch Monza, Vega with manual transmission.** This noise occurs when coasting down or when the engine diesels. An improperly adjusted carburetor throttle lever return dashpot is at fault.

EXCESSIVE ENGINE NOISE

■ **1971-72 Vega.** Emanating from the front engine area and seeming to be a noisy water pump bearing, this noise is actually the result of an improperly-tensioned timing belt.

OLDSMOBILE

COOLING SYSTEM HIGH-PITCHED WHINE

■ **1973 Cutlass, 88, 98, Toronado.** The omission of the rubber restrictor washer from the reduced valve nipple on the heater inlet hose-to-manifold fitting is the cause.

WATER PUMP THUMP

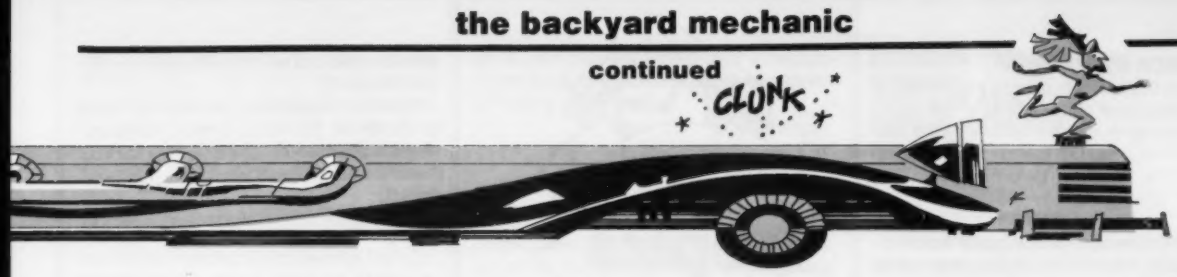
■ **1977 V6.** The thumping is emitted from the heater inlet hose and caused by a restriction in the by-pass port of the water pump. Remove the water pump and run a small rod into the by-pass port to make sure it is not clogged with flashing material. Sometimes the problem may also be caused by an obstruction in the cylinder head.

VALVE TRAIN NOISE

■ **1974 V8.** This may be the result of incorrect rocker arm pivots having been installed.

ROCKER ARM SQUEAK

■ **1970-76 six-cylinder.** Change the rocker arm adjusting nut to a locking-type nut.



ENGINE KNOCK

■ **1970-76.** A knock that persists at all temperatures and exhibits characteristics of "rod knock" may be the result of carbon build-up in the combustion chambers. Before removing the cylinder head try adding a carburetor combustion chamber cleaner.

■ **1978-79 Diesel.** There may be foreign material in an injector nozzle. Sometimes this matter can be dislodged by rapidly flashing the throttle.

■ **1980 Diesel.** The normal operating sound of a cold 1980 diesel engine is much louder and sharper than in previous years. As the engine warms up, the noise level should drop to an acceptable level — comparable with previous years.

ENGINE HISSING

■ **1974-75 Cutlass, 88, 98, Toronado with cruise control.** The hissing indicates the need for an additional restrictor to be installed between the "T" fitting and the regulator of the cruise control.

DISK BRAKE SQUEAK

■ **1975 Starfire.** Install Disk Brake Anti-Squeak Package (part #1251258).

REAR END THUMP

■ **1973 Omega.** If a thump develops on the left side it is possible the shock absorber is the cause. Insert spacers and washer between the body tapping plate and the upper part of the shock.

"U" JOINT RETAINER SQUEAK

■ **1973 Cutlass, Custom Cruiser.** The squeak occurs between 50 and 30 mph or on rough roads. It is caused by rubbing of the retainer tabs against the body of the "U" joint cross. Simply remove the retainer to stop the noise.

SUSPENSION NOISE

■ **1976 Cutlass.** A rubbing sound in the left front portion of the front suspension may be caused by spring movement in the lower control arm spring seat. Deepen the spring seat depression so the seat will move rearward, allowing the spring to keep the correct distance from the vertical wall.

BLOWER MOTOR THUD

■ **1977.** This instrument panel area noise originates in the blower motor and is caused by excessive armature play. To double check, rapidly switch the blower from hi to low. If the armature does have excessive end play the noise will occur during the switching cycle. Replace the blower motor.

PONTIAC

STARTER NOISE

■ **1970-71 V8.** A loud clang when the starter engages is due to the distance between the starter pinion and the flywheel being too great. A high-pitched whine after the engine fires and as the key is being released is caused by the distance between the starter pinion and flywheel being too small or because flywheel teeth have been manufactured with an incorrect tooth profile.

ENGINE KNOCK AT IDLE

■ **1970 V8.** The pulley-to-harmonic balancer screws may have become loose.

LOUD VALVE LIFTER NOISE

■ **1977 400 cubic inch Firebird, LeMans, Bonneville, Catalina, Safari.** Occurring during wide-open throttle operation and/or sharp uphill climbing, this load valve lifter noise is accompanied by drastic oil pressure loss. This is the result of there being no baffle in the engine oil pan. Use the following chart to determine affected engines and components that need replacement.

■ **VIN codes Z, WA, Y6, YU; engine serial numbers start of production (SOP) to 90568:** replace the oil pan and oil pump spring.

■ **VIN codes WA, Y6, YU; engine serial numbers 90569 to 131040:** replace the oil pan.

■ **VIN codes Y7, XK; engine serial numbers SOP to 131040:** replace the oil pan.

STEERING COLUMN POPPING OR SNAPPING

■ **1977 Ventura.** A snapping or popping during turns may be due to the amount of lateral freedom in the intermediate shaft in the pot housing. Since the unit is not serviceable, you'll have to replace the immediate shaft and pot joint assembly.

METAL-TO-METAL NOISE ON FULL TRAVEL OF FRONT SUSPENSION

■ **1978 Sunbird.** This is caused by both front upper control arms contacting the spring towers or pinchwelds. Installing a rubber cushion (part #357220) between both front upper control arms and spring towers should correct this.

DISK BRAKE SQUEAL

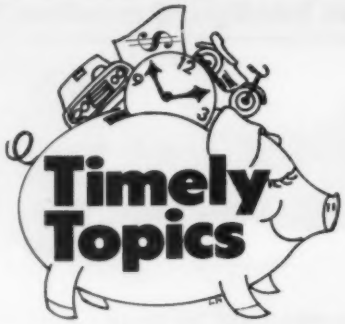
■ **1973-76.** A high-frequency squeal is generally caused by the pads chattering against the rotors. To correct this problem install an insulator package (part #231474).

■ **1976-77.** A high-pitched squeal is considered normal when applying light-to-moderate brake pressure. However, other brake noises should not be lightly passed off as normal. And don't misdiagnose other squeals as the brake pad wear sensor emitting its sound to warn of excessive pad wear. The sensor squeal stops when the brakes are applied.

REAR AXLE WHINE

■ **1977-78 Catalina, Bonneville except station wagons.** This occurs between 45 and 55 mph on vehicles equipped with 7½- or 8½-inch rear axles. It is caused by a driveshaft vibration because of rear axle gear meshing. To correct the noise, replace the slip yoke on the front of the driveshaft with part #7829135.

That winds up the Backyard Mechanic's basic guide to distracting vehicle noises. With four month's background you should now be able to tell us what the noises are in the first paragraph. We'll give the individual with the best answers a DRIVER Magazine pen and pencil set.



NUMBER ONE FEVER

Being in the safety business and having a good projection come true is a real uplifting blessing — even when it is a year late in coming. Such is the case with DRIVER's "Number One Fever," in the March 1980 issue. In that short story, DRIVER projected that Mike Kidd, running the American Motorcyclist Association (AMA) Winston Pro Series, was out to be the Champion and carry number one on his bike in 1981. (Not only did we like Mike personally but the U.S. Army was one of his sponsors and that made us especially interested in his career.)

Well, Kidd didn't make it in 1980 and the Army didn't renew his contract for a third season. However, Mike's talents were quickly grabbed up by the newly-formed Roberts-Lawwill Racing Team.

Coming into the final race of a 26-race circuit that began at the Houston Astrodome in February, Kidd was tied for the series lead. A runner-up finish on the Ascot (Calif.) half-mile made Mike the 16th man to win the AMA Grand National Championship since the title was established in 1954.

And while it may not be nice to say, "we told you so," we told you so.

CLEAN-AIR STANDARDS FOR '83

Claiming reduced costs for car buyers and only a minimal decrease in air quality, the auto industry and its supporters recently presented their case for relaxed emissions standards before Congress.

During its review of the Clean Air Act, the House Subcommittee on Health and Environment heard auto company officials say they strongly supported a bill sponsored by Rep. Bob Traxler, D-Mich., that would ease emissions standards on CO and NOx back to 1980 levels. The officials warned that in order for the changes to have any bearing on the 1983 model year, they must be made by the end of 1981.

Backed by the United Auto Workers in their claims, the industry officials called the 1981 standards stringent and unnecessary.

"These modifications do not represent a substantial rollback from today's auto emission requirements," said Herbert Misch, Ford vice-president for environmental and safety engineering. "Rather, they reflect the fact that the last few increments of automotive emissions reductions have been the most costly, while yielding only minimal air quality benefits.

"While we believe that Americans desire continued improvements in air quality, we also believe that Americans are losing patience with unnecessary requirements that impose unnecessary costs," Misch added.

Clarence Ditlow, director of the Center for Auto Safety, criticized the manufacturers' proposal, saying it would be "bad for the health of the American people. The auto industry's problems are not clean air problems. This is a deal Congress should turn down." He added that the Clean Air Act should not be destroyed in order to get the auto industry out of a financial crisis.

Officials of each of the big three domestic auto makers gave estimates of how much car buyers could save if relaxed standards were implemented. Chrysler Corp. said that its customers could save $200 per car, while Ford said its figure would be $80 a car, and General Motors gave its as $165 to $360 a car.

(AutoWeek)

HOW TO DRIVE WITHOUT MAPS . . . ALMOST

Ever wondered why those interstate highway signs are numbered the way they are? Knowing what they mean can help you make a quick driving decision when you haven't taken the time to look at a map.

All interstate routes in the U.S. are marked with red-white-blue signs shaped like shields and carrying the interstate route number. All major routes have one- or two-digit numbers. Major routes with even numbers, such as I-80, go east and west. Odd-numbered routes, I-75 for example, go north and south.

In urban areas, auxiliary routes that loop around cities have three-digit numbers, using the route number as the last two digits and an even number for the first digit. For example, if you are traveling on route I-25 and come to an auxiliary route marked I-825, you will know this route goes around the city.

Three-digit auxiliary route numbers with the first digit odd are for spur routes, which connect with the major route at only one end. For example, if you are on route I-80 and see an auxiliary route marked I-380, you will know this will take you into the city, not around it.

Another designation which may come in handy is the white-green interstate shield route marker. The color will tell you that the road will lead you to the business district.

(Automotive Information Council)

ROBOTS ARE HERE

With their necks going back and forth while welding, they look like a bunch of metallic turkeys feeding, but they are instrumental in improving the quality of today's new cars.

They're robots, and they are doing welding, painting and other tasks with unsurpassed precision at auto plants around the country. Robots are providing a great advancement in auto production and provide part of the reason for the higher quality of today's cars.

In assembling car bodies, for example, robots are programmed by computer to set hundreds of welds automatically at precise points, making body fits of maximum uniformity.

In the painting process, automatic equipment is programmed to follow the contours of the car to apply the same amount of paint to each panel of the body, providing a better finish.

Robots also are being installed to do heavy lifting and to move hot-metal parts whose handling formerly required a worker to don asbestos gloves in an uncomfortably hot environment.

Smaller robots are being developed to perform delicate tasks, such as inserting a light bulb in an instrument panel.

Manufacturing experts believe the future is unlimited for robots, restricted only by the high cost of the equipment, which must be evaluated on the basis of labor costs.

One auto man called the devices a "foreman's dream," stating that they will work three shifts a day, are never late for work, never take a coffee break and don't complain about working conditions.

Presenting a union view, UAW Vice President Marc Stepp said: "Where robots reduce the burden of labor, who can fight it? Where it does enhance the quality of the product and where it enhances productivity, who can fight that?"

(Automotive Information Council)

HOLIDAY DRIVING GROWING SAFER IN MICHIGAN

Michigan drivers did a better traffic safety job during the three major summer holidays than the rest of the nation, according to the Automobile Club of Michigan.

"In the 10-year period between 1969

and 1979, compared with 1968, on the Memorial Day, July 4 and Labor Day holidays Michigan auto fatalities decreased 31 percent," said a recent report published by the club. "In the rest of the nation, traffic fatalities increased seven percent."

Since 1965, the Automobile Club of Michigan has been running its "Bring 'em Back Alive Holiday News Service," a tourism and traffic report aired on Michigan radio stations.

Since its inception, the service had made 377,000 telephone calls to as many as 168 radio stations with one-minute reports on traffic and recreation conditions, each ending with a safety tip geared to that moment.

In addition to successfully urging increased holiday patrols by state police, the AAA affiliate said its Bring 'em Back Alive program has helped establish an implied-consent drunk driver law, has identified highway stretches with higher accident and fatality statistics, pinpointed questions about Michigan's traffic accidents and focused attention on the three to five percent of drivers who cause a disproportionate percent of fatalities.

(Automotive News)

THE COST OF DRIVING . . .

. . . continues to not only go up, but to *soar,* according to The Hertz Corp.'s eighth annual study of vehicle operating costs.

Average costs for individuals to own and operate typical new compact U.S. cars rose a record 6.8 cents per mile (CPM) to 44.6 cents, 18.1 percent more than last year. Full-sized vehicle costs are up 11.8 percent — 5.4 CPM — to a hefty 51.1 CPM. Intermediates in 1981 suffered a 17.4 percent increase and mid-range cars were ahead 17.7 percent. The cost to run a sub-compact, however, is the bright spot, down to 34.3 CPM or a decrease of 5.3 percent and 1.8 CPM from 1980 levels.

Moon-rocketing interest rates led the record 1980-81 advance but remained neck-and-neck with higher vehicle purchase prices. Hertz's report, though, records increased expenses in all expenditure categories.

"The statistics show motorists are buying smaller cars with fewer options, keeping them longer and driving them less in an effort to offset these continuing increases in automotive ownership and operating expenses," the company said.

According to the study, estimates indicate (all else being equal) that the longer a car is retained, the less it's driven each year and the lower its purchase price, the less it should cost yearly. Hertz cites a series of cost-savings factors that save car buyers about $17,280 over a decade of same-vehicle ownership over the costs of trading every year.

(AutoWeek)

JEEP WARNING HAZARD

Jeep Corporation has agreed to put stickers on its CJ models warning that sharp turns may cause the driver to lose control. The sticker will say: "This multi-purpose vehicle handles and maneuvers differently from an ordinary passenger car. As with other vehicles of this type, sudden sharp turns and abrupt maneuvers may result in loss of control." The stickers will go onto the instrument panel or windshield frame of each new Jeep CJ and the company will send stickers to current owners. If you drive a Jeep or other utility vehicle, be sure to read the article on roll-over accidents in the December '81 issue of DRIVER.

GO BACK TO FULL-SERVE ONCE IN A WHILE

Pumping one's own gas at the self-serve island, once a novelty, has become a way of life for most drivers. Checking the car, however, has not. According to Car Care Council, motorists still are not raising their hoods as often as they should. This is borne out by surveys which disclose a high incidence of cars with fluids needing replenishment, tires underinflated, burned-out lights and other discrepancies.

Motorists who do not do their own inspections should develop the habit of patronizing a full-service station periodically. Once every four fill-ups is suggested as a good interval.

Some older cars should be looked at more frequently, says the Council. Marginal tires or cooling system components warrant regular attention; waiting too long to check oil level could be disastrous to an engine or transmission.

Do not assume that a full-service check-up assures that everything has been covered. It's not the pattern for all service station attendants to check power steering fluid, brake fluid and/or tire pressure on every car that comes into the station. Consequently, it would be advisable to request this service to be sure that these items are checked.

To remind motorists about what should be checked and when, Car Care Council now offers a free pamphlet on this subject. Send a stamped, self-addressed #10 envelope to Checkup, Car Care Council, 17000 Executive Plaza, Dearborn, MI 48126.

DRIVEWAY MECHANICS SHOULD PREPARE FOR REPAIR HAZARDS

With the increased cost of auto parts and repairs, a booming business in tune-up and test equipment for home auto repairs is expected this season.

Anyone doing auto repairs at home will save money, but if safety is neglected, an even higher price in pain and loss can result from driveway mechanic accidents.

One of the driveway mechanic's most common and most dangerous mistakes is using a bumper jack for support while working under the car. A hard tug on a rusted nut-and-bolt assembly could shove the car off the jack, or the jack's lock could fail and let the car drop to the pavement.

Shock hazards can also plague the amateur mechanic. Power tools and trouble lights can provide some shocking experiences unless they are in good repair and double-insulated or properly grounded. Mechanics should choose dry pavement for their work and should mop up coolant and oil spills as soon as they occur.

Batteries also present an explosive hazard because they breathe out hydrogen gas. Large amounts of the explosive gas are liberated when the battery is being charged or jumped, so spark or flame sources should not be allowed near the work area.

Amateur auto repairers may face still another explosion hazard from solvents used to clean greasy auto parts. Gasoline and other explosive solvents never should be used as cleaning agents. Nonflammable solvents, available at hardware stores, should be used instead.

Less deadly but still serious burn hazards are everywhere around a vehicle's engine and exhaust system. Exhaust manifold temperatures, even at idle, can run as high as 600°F. Muffler surface temperatures can run over 400°F, and radiator fluid under pressure can be well above its boiling point.

Gloves and sturdy, long-sleeved shirts or jackets are good protection against burns. They also provide protection against lacerations from jagged metal protrusions and protection against scraped knuckles if a hand should slip from a wrench. Gloves and jackets should be close-fitting so they don't become entangled in mechanisms. Goggles or a plastic face mask provide similar protection for the mechanic's eyes and are especially important when using a carburetor spray solvent or when doing under-the-car work, where dirt, rust flakes and other eye irritants are common.

(National Safety Council)

LETTERS to the EDITOR — BACKFIRE

A "CLASSIC" ACCIDENT

Regarding your November letter "Too Close for Comfort: A "Classic" Accident," I can't believe it! The writer saw another vehicle more than 200 feet away acting peculiarly and has the temerity to state . . . "there was no way for me to avoid hitting him." The writer had several opportunities to avoid this "classic" accident (speed up, slow down, or turn left, etc.) yet chose to do nothing; resulting in major damage to his car. The writer too must be guilty of inattention and therefore contributory negligence. The writer is lucky it wasn't a large vehicle he couldn't avoid! He'd still be right . . . but probably dead!

LT KENNETH M. KELLEY, USN
San Diego, CA 92132

You may be right. But remember, the writer was on a major route. He obviously just couldn't believe the stopped vehicle would pull out. It wasn't reasonable. Of course, the driver of the stopped vehicle was drunk, so reasonable behavior wasn't involved.

A HARROWING EXPERIENCE

Were it not for seatbelts, I would be writing this letter as a childless widower.

In late August, my wife and two daughters were returning to our rural home on a narrow, roller-coaster, gravel road. As she crested a hill, my wife swerved our Subaru wagon to miss an oncoming car in the center of the road. In the loose gravel on the shoulder, she lost control — the car rolled (at 40 mph). I arrived at the scene about 45 minutes later, having been notified by the State Patrol with the most terrifying phone call I have ever received. The car was totalled. Our three-year-old, strapped in her child restraint in the back seat, had a bruised hand and some bumps. The seven-year-old, also in back and using a regular seatbelt, received only bumps and bruises. My wife was en route to the emergency room with a fractured skull she received when her head slammed into the door post as the car flipped onto the driver's side and slid. Her seat and shoulder belt saved her from any other harm; she suffered no cuts, broken bones, or internal injuries. Despite an emergency crainiotomy to repair damage to arteries caused by the skull fracture, my wife was home from the hospital within 10 days. Her extremely rapid recovery is directly attributable to the absence of other injuries. The State Patrolman figures all three would have been killed had they not been belted in. I agree with him.

Incidentally, the girls no longer complain when we remind them to buckle up.

Capt Charles W. Gray, USAF
Peterson AFB, CO 80914

DISCOMFORT BUT LIFE-SAVING

I have been reading with great interest the different stories about wearing full-face helmets, both pro and con. Believe me I'm a pro full-faced helmet man.

While making a trip to San Diego from Novato, Calif. I was involved in what could have been a deadly trip for me. I was riding my motorcycle about two to three car lengths behind a small sports car which was weaving from side to side on the interstate. In front of that was an 18-wheeler and another one was coming up on our left-hand side. I decided to try to pass the car after he had pulled onto the shoulder. I was doing all right and was about three car lengths behind the semi when I decided to pass him.

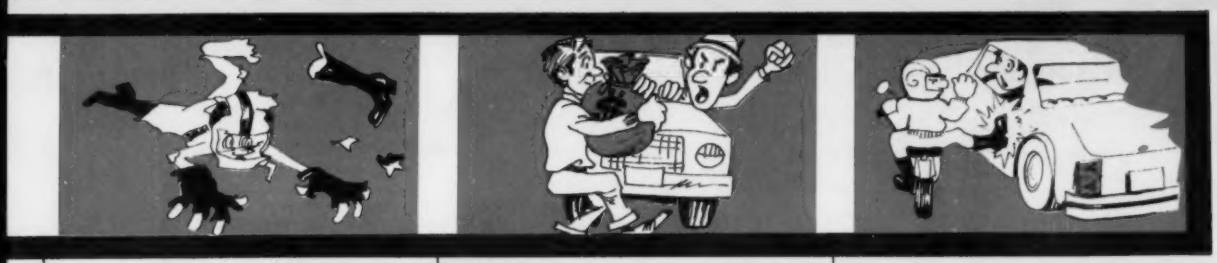
After pulling over to my left I was just in the process of passing when out of my right-hand mirror I saw a black blur, the sports car, pulling up on the right and then into my lane, bruising my right leg and knocking me off balance into the ditch. Before hitting the ditch I laid my bike down and in the process was sliding on my back with my head dragging on the ground.

My full-faced helmet was the real life-saver because somehow I had managed to roll over about two times and each time I had hit face down on the pavement. To make a long story short, my bike was totaled and needless to say so was my helmet. It had about ½-inch grooves in the back and my face mask was totally destroyed. If it had not been for my helmet I would not have much face left. I ended up with a very badly bruised leg and some scratches. As for the driver of the car, his actions were witnessed by the truckers and they boxed him in and made him stop until the highway patrol got there. He was very drunk.

CTA2 Gordon L. Votruba, USN
FPO Seattle 98777

COST OF DRUNK DRIVING

I have had the good fortune to work where DRIVER is available. I view DRIVER to be one of, if not the most, important publications published by any department or agency of the government. It should be required reading for every government employee — military and civilian.



The "Costs of Drunk Driving" article in your November '81 issue is both timely and important. I am convinced that the only way to attack our DWI problem is at the national level. It is a national problem and requires action at the national level. Left to the 50 separate states I see no real hope for making any significant progress in getting the drinking and drunken drivers off our streets and highways.

I believe it is time to strip the 50 separate states from being in the business of granting driver's permits and registering vehicles. Only then can we develop a system that will prevent the drinking driver from floating from state to state picking up a new operator's permit when one has been taken from him in another jurisdiction.

I am a driver of some 42 years and I cannot understand why we as a society continue to permit the slaughter of our families and friends by drunken drivers. The real costs of drunk driving are not the costs to the driver who was drunk. The real costs are borne by the victims and their families.

My goal is to see the drunk driver stripped of his driving privileges forevermore for a first-offense conviction.

MSgt Bob Williams, USA (Ret)
Woodbridge, VA 22193

CHECK TIRE PRESSURE WHEN TEMPERATURE DIPS

"Check Tire Pressure When Temperature Dips" (October) is most accurate and technically correct. However, it misses the point safety agencies should emphasize. If you lose 5% of your fuel, or if you lose 25% of your tire tread life, you still haven't had a mishap. But lose control of your vehicle and fuel and tire life become meaningless. A safety magazine should not overlook safety in pursuit of the pocketbook!

I investigated a single-vehicle, straight-road, fatal rollover at Edwards AFB in 1977 or 1978. The solo driver had apparently fallen asleep, drifted off the road, and snatched it back on to the road after awakening. It should have been no more than a spin-out, but the right front wheel (rim) dug into the pavement and "tripped" the car (a Datsun B210), causing the rollover. No, the seatbelt was not in use, and yes, we estimated the speed at 70 to 75 mph. *But,* the tire pressures of the three tires which were still inflated were 16, 13 and 19 psi. Proper tire pressure by the owner might have prevented this fatality. Doesn't matter though, really. The owner loaned the car to the person who died.

If we keep at it, we may get it right yet!

Lt Col Robert E. Kellock, USAF
Los Angeles AFS, CA 90009

Low tire pressure certainly does cause accidents, and DRIVER has been guilty of emphasizing the financial rewards of proper tire maintenance more often than the lifesaving ones. Sometimes we think people really are more interested in their money than their safety.

CARELESS MOTORCYCLISTS

I just finished reading A.A. Stiff's ignorant and abusive letter about motorcyclists (September DRIVER). I can't believe you printed that trash.

I ride a bike, and so do most of my friends. Let me tell you, we don't survive by being stupid. I can't count the times I've been cut off or passed in my own lane by some idiot in a car who thinks like Stiff. The last guy who passed me in my lane on the freeway has a very large dent in his car that will remind him not to do it again. He got it when he stopped for a traffic light and I caught up to him with a size 11 combat boot.

If bikers were as careless as this clown makes us out to be, we would all be dead. You owe all motorcyclists an apology for allowing this piece of anti-biker propaganda to be printed. For all your talk about "safety" you sure screwed up this time.

By the way, mopeds are not motorcycles and you should know it. Most states classify them as motorized bicycles and you don't need a license to operate one. Also, where did Stiff mention lanesplitting in his letter? I notice you used that to justify his distorted views about motorcycles.

In the future why don't you just stick to promoting safe driving instead of instigating anger?

SSgt Wesley E. Lively, USAF
Langley AFB, VA 23666

Stiff's letter (Sep '81) was interesting because he/she admitted cyclists annoyed him/her "weaving in and out of traffic . . . riding without helmets . . . wearing sandals and shorts." But if you read the whole letter, you'll see he/she has a mature attitude. He/she concludes "I will take three deep breaths when I see a cyclist and give him/her the benefit of the doubt . . . I can make sure the 'seeing red' occurs only at a stop sign." Drivers like Stiff are not going to cause accidents.

Incidentally, most states now require that moped operators be licensed.

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make it Click...

Paul Dixon, National Safety Council, presents the Air Force Inspection and Safety Center Commander, Maj. Gen. Harry Falls Jr., with the Outstanding Effort in Occupant Protection Award. The award recently recognized the Air Force for its efforts in the "Make It Click" safety campaign as the overall top supporter with more buckle-up pledges during Labor Day weekend than any other organization in the United States.

make it Click